University of New Hampshire
InterOperability Laboratory

DSL Consortium

Broadband Forum TR-273 Report

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Tester	[Tester Name]	[Tester Email]	[Tester Phone]
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Report Reviewed by	[Reviewer Name]	[Reviewer Email]	[Reviewer Phone]

Revision 1.0 April 5, 2022

[Vendor Name]
[Company]
[Address Line 1]
[Address Line 2]
[Email]
[Phone]

[Salutation] ;

Enclosed are the results from the Broadband Forum TR-273 Test Plan performed between the [DUT Make] [DUT Model] and [Link Partner Make] [Link Partner Make] . The testing was performed according to Issue 1 of the Broadband Forum TR-273. The current draft of the technical report can be downloaded from the Broadband Forum website:

http://www.broadband-forum.org/technical/download/TR-273.pdf
http://www.broadband-forum.org/technical/download/TR-273_Corrigendum-1.pdf

[Test Notes and Other Important Information]

If you have any questions about the test procedures or results, please contact me via email at [Reporter Email] or by phone at [Reporter Phone] .

Sincerely,
[Reporter Signature]
[Reporter Name]

Reviewed By:
[Reviewer Signature]
[Reviewer Name]

Digital Signature

SAMPLE REPORT

Report Revision History

Revision	Date	Author	Description of Changes
1.0	[Report Date]	[Reporter Name]	• Initial report.

About Report Revisions:

Revisions are typically made to reports to correct errors, typos, or omissions. A revision may also include a retest of one or more test cases, with those test cases identified in the table above. A report revision will not change the software/firmware used during the testing, resulting in some test cases using differing software/firmware versions.

SAMPLE REPORT

Equipment List

1. CPE: [CPE Name] (IOL ID: [IOL ID Number])
   - ◊ System Software Version: [Software Version]
   - ◊ Chipset Manufacturer: [Chipset Make]
   - ◊ Chipset Model: [Chipset Model]
   - ◊ Chipset Firmware Version: [Chipset Firmware]
   - ◊ Serial Number: [Serial Number]
2. DSLAM: [DSLAM Name]
   - ◊ Line-card Model: [Line-card Model] (IOL ID: [IOL ID Number])
   - ◊ System Software Version: [Software Version]
   - ◊ Chipset Manufacturer: [Chipset Make]
   - ◊ Chipset Model: [Chipset Model]
   - ◊ Chipset Firmware Version: [Chipset Firmware]
   - ◊ TPS-TC Mode: [PTM|ATM]
   - ◊ Serial Number: [Serial Number]
   - ◊ Configuration interface used for testing: [Telnet] [Serial] [SNMP]
   - ◊ Ports used for testing: [Port List]
3. CPE Splitter Information: No CPE splitter installed || [CPE Splitter Name and IOL ID Number]
4. CO Splitter Information: No CO splitter installed || CO Splitter integrated with DSLAM || [CO Splitter Name and IOL ID Number]
5. Traffic Generator & Analyzer: [Traffic Generator & Analyzer]
   - ◊ Manufacturer: [Manufacturer]
   - ◊ Software Version: [Software Version]
   - ◊ Model: [Model]
   - ◊ Gigabit Card Name Used: [Gigabit Card Name]
   - ◊ Gigabit Card Model Used: [Gigabit Card Model]
   - ◊ Controller Model Used: [Controller Model]

SAMPLE REPORT

Test Setup

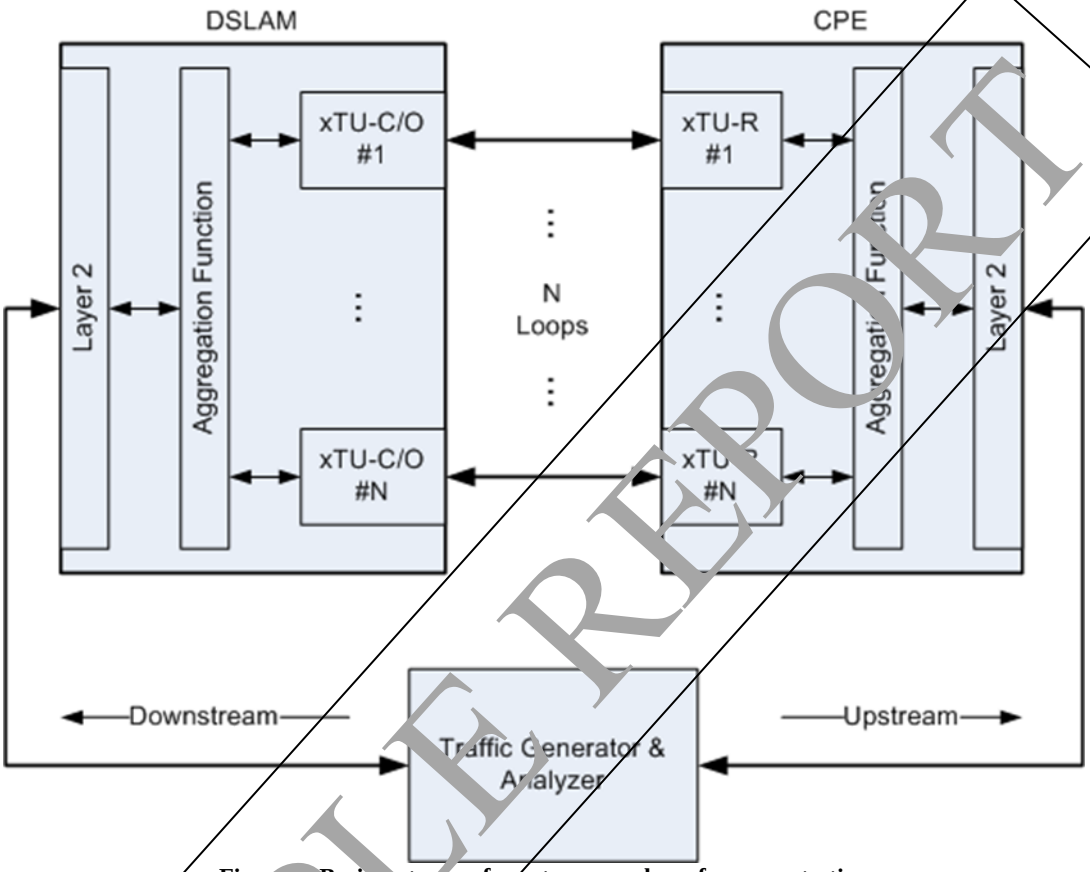

Figure 1 Basic test setup for rate vs. reach performance testing

SAMPLE REPORT

Terminology and Abbreviations

Term	Definition
SUT	System Under Test, the system comprised of the DSLAM, CPE, and optionally the CO and/or CPE splitter(s)
NDR	Actual net data rate reported by the SUT (kbps)
SNRM	Signal to noise margin reported by the SUT (dB)
Delay	Actual interleaving delay reported by the SUT (ms)
INP	Actual INP reported by the SUT (symbols)
LATN	Line attenuation reported by the SUT (dB)
SATN	Signal attenuation reported by the SUT (dB)
XTSE	Actual operation more being used by the SUT
VDSL2 Profile	VDSL2 profile being used by the SUT
iMix	A mix of 64, 598 and 1500 byte frames in a distribution of 7/12, 4/12 and 1/12 respectively
NC	(No Connect) – The SUT failed to train for the respective test point, no further data was collected for the test point
SF	(Stability Failure) – The SUT initially trained with the link partner, but then dropped from show time during the stability check period.

SAMPLE REPORT

Results Key

Result	Meaning	Interpretation
PASS	Pass	The Device Under Test (DUT) was observed to exhibit conformant behavior.
FAIL	Fail	The Device Under Test (DUT) was observed to exhibit non-conformant behavior.
RTC	Refer to Comments	From the observations, a valid pass or fail was not determined. An additional explanation of the situation is included.
Info	Informative	Test is designed for informational purposes only. The results may help ensure the interoperability of the DUT, but are not mandatory requirements.
Warn	Warning	The DUT was observed to exhibit behavior that is not recommended.
N/A	Not Applicable	This test does not apply to the device type or is not applicable to the testing program selected.
N/S	Not Supported	The Device Under Test (DUT) was not observed to support the necessary functionality required to perform these tests or the requirement is optional and not supported by this device.
N/T	Not Tested	This test was not performed and therefore this is not a complete test report. Please see the comments for additional reasons.
UA	Unavailable	The test was not performed due to limitation of the test tool(s) or interoperable systems or the test methodology is still under development.

SAMPLE REPORT

Test Summary

Test Number	Test Name	Results
4.3	Basic Bonding Functionality	**PASS**
4.4	Maximal Unidirectional Frame Rate	**PASS**
4.5	Maximal Bidirectional Frame Rate	**PASS**
4.6	Maximally Unequal Net-Data Rates	**PASS**
4.7	Power Cycling the Bonding CPE	**PASS**

SAMPLE REPORT

Test Detail

Vendor Supplied Information

Vendor Supplied Information		
Parameter	**Upstream**	**Downstream**
iMix Max Bond Rate (kbps)	72000	190000
64-byte Max Bond Rate (kbps)	76000	190000
256-byte Max Bond Rate (kbps)	92000	230000
1024-byte Max Bond Rate (kbps)	88000	220000
1500-byte Max Bond Rate (kbps)	88000	220000
PTM Fragment Size (bytes)		
CRC Size (2-bytes for G.992.x & G.993.x, 4-bytes for G.991.x)		2

SAMPLE REPORT

Test 4.3: Basic Bonding Functionality Test

	Upstream	Downstream
Line 1 Net-data-rate (kbps)	49638	125656
Line 2 Net-data-rate (kbps)	49638	124680
Total Net-data-rate (kbps)	99276	250336

Test 4.3: Basic Bonding Functionality Test													
Upstream							**Downstream**						
Frame Size (bytes)	**Required Bit Rate (kbps)**	**Transmitted Frame Rate (fps)**	**Frames Transmitted**	**Frames Received**	**Dropped Frames**	**Reported Code Violations (CV)**	**Frame Size (bytes)**	**Required Bit Rate (kbps)**	**Transmitted Frame Rate (fps)**	**Frames Transmitted**	**Frames Received**	**Dropped Frames**	**Reported Code Violations (CV)**
iMix	72000	23248	13,933,847	13,933,847	0	0	iMix	190000	613[illegible]	36,748,106	36,748,106	0	0
Expected Results													
Not more than 7 frames lost within the required test period (Upstream)													**PASS**
Not more than 7 frames lost within the required test period (Downstream)													**PASS**
Comments													
None.													

SAMPLE REPORT

Test 4.4: Unidirectional Traffic Test

	Upstream	Downstream
Line 1 Net-data-rate (kbps)	49638	125656
Line 2 Net-data-rate (kbps)	49638	124680
Total Net-data-rate (kbps)	99276	250336

Test 4.4: Unidirectonal Traffic Test

Upstream							Downstream						
Frame Size (bytes)	Required Bit Rate (kbps)	Transmitted Frame Rate (fps)	Frames Transmitted	Frames Received	Dropped Frames	Reported Code Violations (CV)	Frame Size (bytes)	Required Bit Rate (kbps)	Transmitted Frame Rate (fps)	Frames Transmitted	Frames Received	Dropped Frames	Reported Code Violations (CV)
iMix	72000	23248	2,965,830	2,965,830	0	0	**iMix**	38116.66667	100	12,715	12,715	0	0
64	76000	133626	17,482,756	17,482,756	0	0	**iMix**	38116.66667	100	13,041	13,041	0	0
256	92000	42250	5,325,381	5,325,381	0	0	**iMix**	38116.66667	100	12,564	12,564	0	0
1024	88000	10103	1,285,117	1,285,117	0	0	**iMix**	38116.66667	100	12,671	12,671	0	0
1500	88000	6889	944,823	944,823	0	0	**iMix**	38116.66667	100	13,671	13,671	0	0
iMix	38116.66667	100	13,066	13,066	0	0	**iMix**	190000	61350	7,966,984	7,966,984	0	0
iMix	38116.66667	100	14,847	14,847	0	0	**64**	190000	334065	49,409,285	49,409,285	0	0
iMix	38116.66667	100	12,341	12,341	0	0	**256**	230000	105625	12,991,667	12,991,667	0	0
iMix	38116.66667	100	14,409	14,409	0	0	**1024**	220000	25258	3,625,272	3,625,272	0	0
iMix	38116.66667	100	12,754	12,754	0	0	**1500**	221000	17302	2,166,057	2,166,057	0	0
Expected Results													
Not more than 7 frames lost within the required test period (Upstream)													**PASS**
Not more than 7 frames lost within the required test period (Downstream)													**PASS**
Comments													
1. Results in the shaded area are for informational purposes only and have no effect on the final result of the test.													

SAMPLE REPORT

Test 4.5: Bidirectional Traffic Test

	Upstream	Downstream
Line 1 Net-data-rate (kbps)	49638	125656
Line 2 Net-data-rate (kbps)	49638	124680
Total Net-data-rate (kbps)	99276	250336

Test 4.5: Bidirectonal Traffic Test

Upstream							Downstream						
Frame Size (bytes)	Required Bit Rate (kbps)	Transmitted Frame Rate (fps)	Frames Transmitted	Frames Received	Dropped Frames	Reported Code Violations (CV)	Frame Size (bytes)	Required Bit Rate (kbps)	Transmitted Frame Rate (fps)	Frames Transmitted	Frames Received	Dropped Frames	Reported Code Violations (CV)
iMix	72000	23248	3,258,804	3,258,804	0	0	**iMix**	190000	61350	8,567,514	8,567,514	0	0
64	76000	133626	16,977,382	16,977,382	0	0	**iMix**	190000	61350	7,750,388	7,750,388	0	0
256	92000	42250	5,564,178	5,564,178	0	0	**iMix**	190000	61350	8,038,868	8,038,868	0	0
1024	88000	10103	1,481,873	1,481,873	0	0	**iMix**	190000	61350	8,953,596	8,953,596	0	0
1500	88000	6889	865,855	865,855	0	0	**iMix**	190000	61350	7,670,780	7,670,780	0	0
iMix	72000	23248	3,498,413	3,498,413	0	0	**64**	190000	334065	50,138,375	50,138,375	0	0
iMix	72000	23248	2,861,702	2,861,702	0	0	**256**	230000	105625	12,959,638	12,959,638	0	0
iMix	72000	23248	3,800,070	3,800,070	0	0	**1024**	220000	25258	4,120,393	4,120,393	0	0
iMix	72000	23248	3,008,534	3,008,534	0	0	**1500**	221000	17302	2,232,923	2,232,923	0	0

Expected Results	
Not more than 7 frames lost within the required test period (Upstream)	**PASS**
Not more than 7 frames lost within the required test period (Downstream)	**PASS**

Comments

1. Results in the shaded area are for informational purposes only and have no effect on the final result of the test.

SAMPLE REPORT

Test 4.6: Maximally Unequal Net-data Rates Test

	Upstream	Downstream
Line 1 Net-data-rate (kbps)	49638	125656
Line 2 Net-data-rate (kbps)	49638	124680
Total Net-data-rate (kbps)	99276	250336

Test 4.6: Maximally Unequal Net-data Rates Test

Upstream							Downstream						
Frame Size (bytes)	Required Bit Rate (kbps)	Transmitted Frame Rate (fps)	Frames Transmitted	Frames Received	Dropped Frames	Reported Code Violations (CV)	Frame Size (bytes)	Required Bit Rate (kbps)	Transmitted Frame Rate (fps)	Frames Transmitted	Frames Received	Dropped Frames	Reported Code Violations (CV)
iMix	72000	23248	3,367,613	3,034,405	333,208	0	**iMix**	190000	61350	8,849,205	7,519,672	1,329,533	0
64	76000	133626	20,264,844	16,000,878	4,263,966	0	**iMix**	190000	61350	9,253,712	7,860,048	1,393,664	0
256	92000	42250	5,274,892	3,638,211	1,636,681	0	**iMix**	190000	61350	7,616,763	6,471,588	1,145,175	0
1024	88000	10103	1,262,284	915,685	346,599	0	**iMix**	190000	61350	7,617,079	6,473,398	1,143,681	0
1500	88000	6889	856,230	625,244	230,986	0	**iMix**	190000	61350	7,582,814	6,440,933	1,141,881	0
iMix	72000	23248	3,143,582	2,832,489	311,093	0	**64**	190000	334065	45,052,506	36,955,028	8,097,478	0
iMix	72000	23248	3,303,595	2,976,204	327,391	0	**256**	230000	105625	14,980,944	10,534,410	4,446,534	0
iMix	72000	23248	3,076,571	2,772,121	304,450	0	**1024**	220000	25258	3,333,270	2,438,831	894,439	0
iMix	72000	23248	2,885,810	2,600,574	285,236	0	**1500**	221000	17302	2,143,149	1,563,081	580,068	0

Expected Results	
Not more than 7 frames lost within the required test period (Upstream)	**PASS**
Not more than 7 frames lost within the required test period (Downstream)	**PASS**

Comments

1. Results in the shaded area are for informational purposes only and have no effect on the final result of the test.

SAMPLE REPORT

Test 4.7: Power Cycle CPE Test

	Upstream	Downstream
Line 1 Net-data-rate (kbps)	49638	125656
Line 2 Net-data-rate (kbps)	49638	124680
Total Net-data-rate (kbps)	99276	250336

Test 4.7:Power Cycle CPE Test													
Upstream							**Downstream**						
Frame Size (bytes)	**Required Bit Rate (kbps)**	**Transmitted Frame Rate (fps)**	**Frames Transmitted**	**Frames Received**	**Dropped Frames**	**Reported Code Violations (CV)**	**Frame Size (bytes)**	**Required Bit Rate (kbps)**	**Transmitted Frame Rate (fps)**	**Frames Transmitted**	**Frames Received**	**Dropped Frames**	**Reported Code Violations (CV)**
Before Power Cycle													
iMix	72000	23248	15,071,017	15,071,017	0	0	**iMix**	190000	61350	43,964,068	43,964,068	0	0
After Power Cycle													
iMix	72000	23248	19,741,400	18,602,337	1,139,063	0	**iMix**	190000	61350	53,430,764	49,025,209	4,405,555	0
Expected Results													
Not more than 7 frames lost within the required test period (Upstream)													**PASS**
Not more than 7 frames lost within the required test period (Downstream)													**PASS**
Comments													
All frames dropped were sent during the power cycle and as such do not denote a fail.													

SAMPLE REPORT